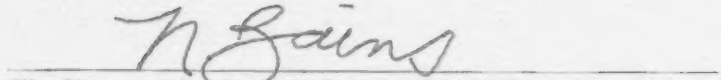
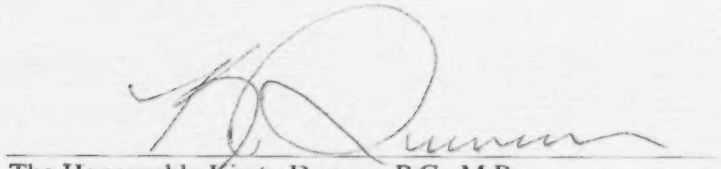
National Research Council Canada

2015–16

Departmental Performance Report



The Honourable Navdeep Bains, P.C., M.P.,
Minister of Innovation, Science and Economic Development



The Honourable Kirsty Duncan, P.C., M.P.,
Minister of Science

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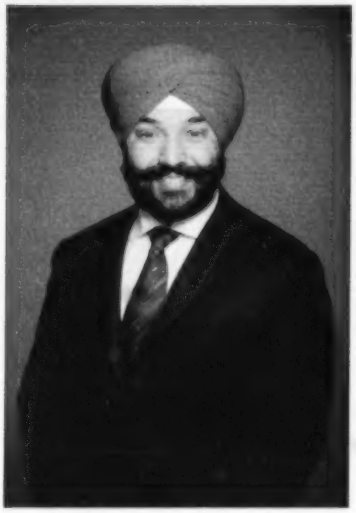
Minister's Message

We are pleased to report the key results of the National Research Council Canada (NRC) for 2015–16.

The programs of the Innovation, Science and Economic Development Portfolio work together to deliver what Canada needs to improve productivity performance, to grow the economy and to enhance prosperity and well-being. That means supporting the government's commitment to develop an Innovation Agenda, which will in turn create good-paying jobs for the middle class, drive growth across all industries, and improve the lives of Canadians. The work of the Portfolio includes helping small businesses grow through trade and innovation, promoting increased tourism to Canada, and supporting scientific research and the integration of scientific considerations in our investment and policy choices.

As we approach Canada's 150th anniversary, we pledge to continue working with stakeholders from across the country to strengthen our place in the global economy.

It is our honour to present the *2015–16 Departmental Performance Report* for the NRC.



The Honourable Navdeep Bains
Minister of Innovation, Science and Economic Development

The Honourable Kirsty Duncan
Minister of Science

The Honourable Bardish Chagger
Minister of Small Business and Tourism and Leader of the Government in the House of Commons

President's Message

I am pleased to submit for tabling in Parliament, the 2015-16 Departmental Performance Report for the National Research Council of Canada (NRC). In its 100th year of operation, NRC is as ready to contribute as ever in its history.

This past year, NRC undertook to develop and implement R&D initiatives designed to support Canadian firms in moving innovative ideas and technologies to market more quickly; continued to expand relationships with key partners on a national and international level - renewing Canada's membership in EUREKA[1] as one example; and also enriched its National Science Library collection through a partnership with six federal government science libraries to create the Federal Science Library.

NRC also converted strong science into commercial outcomes by:

- advancing knowledge with the deployment of the Algal Carbon Conversion demonstration plant, a collaborative project with St Marys Cement and Pond Biofuels, where marine algae is used to convert CO_2 emissions from manufacturing industries into biomass that can then be converted to biofuels and other valuable end products;
- providing technology support to help Canadian companies develop technologies they need to become leaders in the growing vehicle propulsion supply chain by developing high-performance materials and mass-production manufacturing processes and supporting the development of more environmentally responsible vehicles;
- supporting technology platforms and state-of-the-art facilities that drive Canadian leadership such as the Gemini Observatory, consisting of two 8.1-meter telescopes located in Hawaii and Chile – built and operated by an international partnership consisting of six countries including Canada; and
- providing financial contributions to nearly 2,500 small-and-medium-sized, innovative, Canadian firms and supporting almost 11,000 Canadian jobs in the process through NRC's Industrial Research Assistance Program (IRAP).

As NRC moves towards its second century, we are well placed to leverage its strengths to continue to contribute to the new Innovation Agenda. For example, NRC is:

- preparing today for the emerging science and technologies of tomorrow for Canada to continue to thrive and prosper over the coming years;
- partnering through our national footprint of R&D facilities located across the country and our 38 large-scale, collaborative R&D initiatives, aligned with areas of economic importance to Canada;
- fostering a culture of innovation by helping firms identify key candidates for technical and managerial positions and injecting skilled graduates into firms through IRAP's Youth Employment Program; and
- scaling innovative high impact small and medium-sized enterprises to global firms through IRAP's suite of programs such as the Canada Accelerator and Incubator Program and the CanExport Program in partnership with Global Affairs Canada.

As we reflect proudly on all NRC accomplished for Canada this past year—by connecting, convening and collaborating with others across the innovation system to solve complex problems in areas of critical importance to Canada—we look to the future in anticipation of all the possibilities that remain for the NRC to support the government's agenda.

Results Highlights

What funds were used? (2015–16 Actual Spending)	Who was involved? 2015-16 Actual Full Time Equivalents [FTEs]
945,077,595$	3,668.6

Results Highlights

NRC's highlights focus on 2015-16 results related to technological and scientific advancements and mandate commitments.

- NRC supported the development of the Canadian Space Agency lander simulation and training using a Bell 205 aircraft to develop control and landing techniques needed by astronauts to safely land lunar modules on the moon. The simulation successfully mimicked the final phases of the trajectory, hover, and landing of a real moon landing;
- NRC has and continues to utilize its expertise in the development and deployment of an autopilot system for the navy's submarine force to facilitate safe and effective near surface operations. NRC also developed information technology and sensor-based technologies for the Canadian Coast Guard to provide ships with real time information that supports navigation and the assessment of risk (i.e. icebergs) for maritime operations in the Arctic;
- Through the Algal Carbon Conversion initiative, NRC partnered with Pond Technologies, St Marys Cement and Canadian Natural Resources Limited to commission a $4.3M demonstration-scale algal bio-refinery to remove CO_2 directly from the cement factory's flue gas and produce algal biomass;
- NRC and TRIUMF (Canada's National Laboratory for Particle and Nuclear Physics) signed a new contribution agreement in 2015 that provided funding to support the laboratory's Five-Year Plan: 2015 - 2020. This agreement provides $269.5M in operational funding over five years to further advance leading-edge academic and applied research in particle and nuclear physics, materials science, nuclear medicine, and accelerator-based sciences;
- IRAP provided small and medium-sized enterprise (SME) clients with technical and business advice, and funding for innovation projects. A total of 2,341 unique firms were funded through contributions for a total of 2,949 projects, supporting 10,980 jobs with 87% of SMEs reporting an increase in total employees, revenue, or profit;
- NRC in partnership with five other science-based agencies and departments launched the Federal Science Library - a single information discovery and access platform, allowing partner departments/agencies to share technology to open their library collections and institutional repositories to each other; and
- NRC's revenue increased to $186M in 2015-16 (from $147M in 2014-15) as a result of more client engagements on NRC research initiatives and technical services, in addition to the completion of client work disrupted by NRC's cyber incident in 2014. While NRC increased its revenues by 26% from 2014-15 to 2015-16, during the same period operating expenses were reduced by 9% demonstrating a more efficient use of its resources.

Section I: Organizational Overview

Organizational Profile

Appropriate Ministers:

The Honourable Navdeep Bains, P.C., M.P., Minister of Innovation, Science and Economic Development;

The Honourable Kirsty Duncan, P.C., M.P., Minister of Science; and

The Honourable Bardish Chagger, P.C., M.P., Minister of Small Business and Tourism and Leader of the Government in the House of Commons.

Institutional Head:

John McDougall (to 18 March 2016)

Maria Aubrey (acting) (from 18 March 2016 to August 23, 2016)

Iain Stewart (from August 24, 2016)

Ministerial Portfolio: Innovation, Science and Economic Development

Enabling Instrument(s): *National Research Council Act* [ii], R.S.C. 1985, c. N-15

Year of Incorporation / Commencement: 1916

Other: NRC is a departmental corporation of the Government of Canada, reporting to Parliament through the Minister of Innovation, Science and Economic Development. NRC works in partnership with members of the Innovation, Science and Economic Development Portfolio to leverage complementary resources to promote science and integrated innovation, to exploit synergies in key areas of science and technology (S&T), to promote the growth of small and medium-sized enterprises (SMEs) and to contribute to Canadian economic growth. NRC's Council provides independent strategic direction and advice to the NRC President and reviews organizational performance. The President provides leadership and strategic management and is responsible for the achievement of NRC's long-range goals and plans. Each of NRC's seven Vice Presidents is responsible for a number of areas composed of research sub-programs, initiatives, centres, the Industrial Research Assistance Program, and/or a corporate branch. Vice Presidents and NRC managers are responsible for executing plans and priorities to ensure successful achievement of objectives.

Organizational Context

Raison d'être

NRC bridges the innovation gap between early stage research and development (R&D) and commercialization, focusing on integrated innovation to provide socio-economic benefits for Canada and increasing national performance in science and innovation. A federal leader in technology development, NRC supports Canadian industry to enhance their innovation capabilities and capacity and become more productive in the development and deployment of innovative products, processes and services to advance Canada's social and economic goals. With a presence in every province, NRC combines its strong national foundation with international linkages to help Canada increase its productivity and knowledge and to remain globally competitive. NRC works in collaboration with industry, governments and academia to maximize the impact of Canada's overall R&D investment.

Responsibilities

Under the *National Research Council Act*[iii], NRC is responsible for:

- Undertaking, assisting or promoting scientific and industrial research in fields of importance to Canada;
- Providing vital scientific and technological services to the research and industrial communities;
- Investigating standards and methods of measurement;
- Working on the standardization and certification of scientific and technical apparatus and instruments and materials used or usable by Canadian industry;
- Operating and administering any astronomical observatories established or maintained by the Government of Canada;
- Establishing, operating and maintaining a national science library; and
- Publishing and selling or otherwise distributing such scientific and technical information as the Council deems necessary.

NRC VISION

To be the most effective research and technology organization (RTO) in the world, stimulating sustainable domestic prosperity.

NRC MISSION

Working with clients and partners, we provide innovation support, strategic research, scientific and technical services to develop and deploy solutions to meet Canada's current and future industrial and societal needs.

Strategic Outcomes and Program Alignment Architecture

1. Strategic Outcome (SO1): Canadian businesses prosper from innovative technologies

- **1.1 Program:** Technology Development and Advancement (TD&A)
  - **1.1.1 Sub-Program:** Aerospace
  - **1.1.2 Sub-Program:** Automotive and Surface Transportation (AST)
  - **1.1.3 Sub-Program:** Ocean, Coastal and River Engineering (OCRE)
  - **1.1.4 Sub-Program:** Energy, Mining and Environment (EME)
  - **1.1.5 Sub-Program:** Construction
  - **1.1.6 Sub-Program:** Aquatic and Crop Resource Development (ACRD)
  - **1.1.7 Sub-Program:** Medical Devices (MD)
  - **1.1.8 Sub-Program:** Human Health Therapeutics (HHT)
  - **1.1.9 Sub-Program:** Information and Communications Technologies (ICT)
  - **1.1.10 Sub-Program:** Security and Disruptive Technologies (SDT)
- **1.2 Program:** Industrial Research Assistance Program (IRAP)

2. Strategic Outcome (SO2): R&D Infrastructure for an innovative and knowledge-based economy

- **2.1 Program:** Science Infrastructure and Measurement (SI&M)
  - **2.1.1 Sub-Program:** National Science Infrastructure (NSI)
  - **2.1.2 Sub-Program:** Measurement Science and Standards (MSS)

Program: Internal Services

Operating Environment and Risk Analysis

Narrative

In 2015, the Canadian economy grew at 1.2%, about half its 2014 rate. Growth in the global economy overall (at 2.4%) was held back by a slowdown of the emerging economies impacted by weak trade and low commodity prices. Within this environment, NRC needed to risk mitigate a decrease in engagement by some clients financially impacted by market downturns (e.g., oil and gas sector). As part of its priority to continue to deliver results to clients and Canada, NRC increased client R&D engagement in other sectors of the economy (e.g., ICT), in addition to furthering opening international market opportunities through growth in initiatives such as EUREKA in support of Canadian company engagement and access to European markets.

In 2015-16, youth employment, clean technologies, federal support for science, and the development of an inclusive Innovation Agenda were emerging areas of priority for the Government of Canada. NRC's vision, mission and priorities are aligned with these priorities, supported by the organization's breadth of expertise, nation-wide capabilities in basic and applied research, multi-disciplinary programs, including IRAP and NRC's ability to connect, convene and collaborate with players across the innovation system to tackle large complex challenges facing the country.

Increased priority was put on environmental stewardship and occupational safety and health, with recognition of the potentially hazardous nature of R&D activities. Amongst other actions taken, a new Environmental Stewardship initiative has been established with dedicated resourcing.

IT security also remained a top risk that NRC managed, as it engaged with Shared Services Canada to define IT roles and responsibilities and service standards as well as addressing priority issues and continuing to transition critical systems to full operability.

Progress made in FY 2015-16 against the top externally-oriented risks include the following:

Key Risks

Risk	Risk Response Strategy	Link to PAA
Delivery of Results for Clients & Canada: There is a risk that NRC may be unable to effectively deliver expected results for clients and Canada, and demonstrate them in a manner that will sustain the confidence and support of the Government of Canada and other stakeholders.	1. Initial three-year program reviews were completed to ensure continued relevance and effectiveness aligned with NRC strategy, market and research needs of industry and Canada.. 2. Communities of practice (CoP) have been established to facilitate sharing of better practices, and help address challenges in support of enhanced delivery of performance results. The most recent is the CoP for R&D Directors, with other CoPs also in place for: Program Leaders, Directors of Operations, and Project Managers. 3. Out of NRC clients surveyed, 92% indicated that they are satisfied with NRC's work and 93% indicated they would work with NRC again. 4. Corporate monthly and quarterly risk and performance reviews by NRC Senior Executives are ongoing to monitor progress against plans and make course adjustments. 5. NRC's Business Opportunity Sharing System for client relationship management came back on line in 2015 to better manage opportunity pipeline and client accounts.	Strategic Objective 1 and Strategic Objective 2
Effective Implementation of Secure NRC: There is a risk that NRC will be unable to sufficiently shift organizational culture and employee behaviours to effectively implement the necessary governance, controls and practices for management of proprietary and confidential information subsequent to the cyber intrusion, affecting its perceived value and relationship with clients and partners.	1. A Security Program Master Policy and Policy Framework was approved, and a new SEC Security Management Committee (SMC) and sub-committee was put in place to support implementation of the enterprise security program; with a new Security Branch in place, an approved Departmental Security Plan is being implemented. 2. NRC Security Champion Network was established to review new proposed security policies and practices from a users' perspective. There is ongoing participation by the Departmental Security Officer in the Treasury Board Secretariat (TBS) Security Advisory Committee and government-wide security initiatives 3. NRC continues to engage with Shared Services Canada/ (SSC) in defining IT security roles and responsibilities, services standards and resolution mechanisms.	Strategic Objective 1 and Strategic Objective 2

Risk	Risk Response Strategy	Link to PAA
Global Disruption: There is a risk that NRC may be unable to respond in a timely manner to the potential impact of global event(s) which may lead to significant instability and economic downturn with impacts on client ability and/or willingness to invest in R&D.	1. Competitive and strategic intelligence capabilities from NRC Knowledge Management, Planning and Risk Management, Government and International Relations, and Business and Management Support have facilitated monitoring and tracking of emerging issues and their impacts on NRC, clients and Canada. 2. In addition, other governmental department (OGD) relationships are continuing to provide intelligence on global issues and implications for responses. Engagement with Innoventures Canada (I-CAN) enables a forum for Canadian and international RTO collaboration on major issues.	Strategic Objective 1 and Strategic Objective 2

Organizational Priorities

Priority 1: Generating results for clients

Description

Generate demonstrable results for clients[1] through market-driven research, technology development and innovation support services to help Canadian firms thrive in today's globally competitive, innovation-based economy.

Priority Type[2]

Previously committed to

Key Supporting Initiatives

Planned Initiatives	Start Date	End Date	Status	Link to Department's Program Alignment Architecture
• Form and strengthen strategic partnerships, engage key stakeholders and facilitate networks among industry and innovation players – to lower technology development risk and solve short-term technological challenges.	April 2014		On track	SO1: Canadian businesses prosper from innovative technologies, and SO2: R&D infrastructure for an innovative and knowledge-based economy
• Advance emerging technologies of increasing importance nationally and globally, supported by foresight activities to remain ahead of the curve and anticipate the future needs of business.	April 2015		On track	
• Support Canadian industry in accessing domestic and global markets by advancing the development of measurement standards that	April 2014		On track	

[1] NRC clients include OGDs and communities that use Canadian research facilities and astronomical observatories, Canada's national measurement system and the National Library Services.

[2] Type is defined as follows: previously committed to—committed to in the first or second fiscal year prior to the subject year of the report; ongoing—committed to at least three fiscal years prior to the subject year of the report; and new—newly committed to in the reporting year of the RPP or the DPR.

Planned Initiatives	Start Date	End Date	Status	Link to Department's Program Alignment Architecture
underlie domestic and international trade. Additionally, through its international framework, NRC will support Canadian industrial competitiveness by investing in key international networks (such as EUREKA) that facilitate access to global value chains.				
• Through IRAP, provide SME clients with access to technical and business advice, networking opportunities, and cost-shared merit-based contributions for their innovative projects.	April 2014		On track	
• Facilitate access to national, large-scale science infrastructure for Canadian research communities, including the TRIUMF sub-atomic research facility, and astronomical observatories, as mandated by the National Research Council Act.	April 2014		On track	

Progress Toward the Priority

- NRC participated in strategic partnerships with innovation players to develop and deploy solutions to technological challenges. As an example, NRC partnered with the Department of National Defence (DND) and implemented technologies to clean up diesel fuel spills at Canadian Forces Station (CFS) Alert. In collaboration with industry, a new high performance iron powder formulation for powertrains was successfully developed, produced, validated and sent to the partner's clients for validation of manufacturing automotive gear parts at industrial production scale. Through the Algal Carbon Conversion initiative, NRC partnered with Pond Biofuels Inc. (photo bioreactor developer) and St Marys Cement to commission a demonstration plant that will remove CO_2 directly from the cement factory's flue gas to produce algal biomass. Another NRC partnership, the Canadian Wheat Alliance[iii], developed technologies to bring innovation to market faster and at lower cost with the development of an improved germplasm breeding method providing cost savings and reducing breeding time. NRC remained highly involved with strategic partnerships in the bio-therapeutics, medical device, crop and biomass sectors with a noteworthy collaboration with KalGene Pharmaceuticals to develop an Alzheimers' disease therapeutic for delivery to the brain using NRC's carrier technology.
- NRC's Measurement Science and Standards (MSS) served 826 clients and 621 of its calibration and measurement capabilities were formally recognized internationally. This work provides the measurement basis for all Canadian exports. For example, MSS launched 15 completely new certified reference materials (CRMs) used to check and validate measurements methods in seafood safety, water quality testing, environmental testing, nutritional supplements, and stable isotope verification. MSS also contributed 48 scientific papers to the metrology literature plus 3221 calibration and other reports to clients in contribution to Canada's knowledge-based economy. To maintain a forward-looking perspective on potential game changing technologies, NRC launched a consultative crowdsourcing exercise to identify areas critical to Canada's future in which technology game changers have the potential to bring revolutionary impacts on Canadian well-being and economic growth.
- NRC renewed Canada's membership in EUREKA[i], an intergovernmental network for market-driven industrial research and development that includes over 40 economies from the EU, Israel, South Korea, and Canada, allowing Canadian innovators to access technology, expertise, and markets within the network to develop products, processes and services. 29 projects (18 Network, 11 Cluster) were labelled (or approved by EUREKA Boards) - up from a total of 25 projects in the previous year. Canada ranked fourth among EUREKA members nations in both Network and Cluster projects in 2015-16.
- NRC's breakthrough technology for production of boron nitride nanotubes, exceptionally strong and

Planned Initiatives	Start Date	End Date	Status	Link to Department's Program Alignment Architecture
lightweight materials suitable for advanced manufacturing applications in the defence, aerospace, automotive and health sectors was licensed to Quebec's Tekna Plasma Systems, now the world's leading source of these materials. This technology allows production rates 100 times faster than currently available. The NRC researchers[3] who led this new technology's development were presented with a 2015 Public Service Award of Excellence for Scientific Contribution by the Governor General. • IRAP provided SME clients with technical and business advice and funding for innovation projects. A total of 2,341 unique firms (vs 2,564 in 2014-15) were funded through Contributions for a total of 2,949 projects, supporting 10,980 jobs (up from 9,240 jobs in 2014-15) with 87% of SMEs reporting an increase in total of employees, revenue, and/or profit. • NRC and TRIUMF signed a new contribution agreement in 2015 that provided funding to support the laboratory's Five-Year Plan: 2015 - 2020. This agreement provides $269.5M in operational funding over this period to further advance leading-edge academic and applied research in particle and nuclear physics, materials science, nuclear medicine, and accelerator-based sciences.				

Priority 2: Effective and efficient resource management

Description

Drive organizational growth to deliver on expected results and enable effective and efficient resource management for a sustainable organization.

Priority Type[4]

Previously committed

Key Supporting Initiative

Planned Initiatives	Start Date	End Date	Status	Link to Department's Program Alignment Architecture
• Increase external visibility of NRC R&D initiatives and opportunities, including international market/outreach strategies and relationship opportunities with Regional Development Agencies and provincial RTOs.	April 2015		On track	SO1: Canadian businesses prosper from innovative technologies, and SO2: R&D infrastructure for an innovative and knowledge-based economy
• Partner with other science-based departments to develop and pilot a single, shared online discovery and access platform for federal science library services and collections.	April 2015		On track	
• Establish a security framework, operations and mindset that ensure the security of infrastructure, information and people, as a top priority for NRC.	April 2014		On track	

[3] Researchers included Stéphane Dénommée, Jingwen Guan, Ph.D., Michael Jakubinek, Ph.D., Keun Su Kim, Ph.D., Christopher T. Kingston, Mark Plunkett and Benoit Simard, Ph.D.

[4] Type is defined as follows: previously committed to—committed to in the first or second fiscal year prior to the subject year of the report; ongoing—committed to at least three fiscal years prior to the subject year of the report; and new—newly committed to in the reporting year of the RPP or the DPR.

Planned Initiatives	Start Date	End Date	Status	Link to Department's Program Alignment Architecture
• Continue regular corporate and R&D performance reporting to track delivery against objectives and make timely course corrections.	April 2014		On track	
• Use three-year reviews of R&D performance to support management and investment decisions on continuance, adjustments or termination.	April 2014		On track	
• Continue to implement talent attraction and management initiatives to ensure an agile and sustainable workforce to support the implementation of NRC's strategy.	April 2014		Ongoing	

Progress Toward the Priority

- In March 2016, NRC in partnership with five other science-based agencies and departments launched the Federal Science Library, providing a single, shared online discovery and access portal for scientific and technical information services. The Federal Science Library will ensure that all science, technology and medicine professionals in the federal government have desktop access to the information they need to work efficiently and productively.
- As part of the on-going efforts to achieve full IT operability post cyber-intrusion, NRC has successfully migrated 14 out of 25 targeted corporate applications to a new secure environment, allowing the business units of these applications to return to full productivity. As the remaining business critical applications get migrated, a new security approach involving a new policy, a new framework and a new security awareness program was established to further improve NRC's overall security plan and security culture.
- NRC implemented a quarterly reporting process across NRC's 38 R&D initiatives which provides senior executives with an objective assessment of progress made against plans, including financial performance, risk management, business development, changes in market demand, client engagement, resource utilization, milestone achievement, and technology deployment.
- Following a pilot process in 2014-15, NRC commenced full implementation of three-year reviews of research initiatives to assess their continued relevance aligned with NRC's strategy, the market and research needs of industry and Canada.
- NRC deployed a number of initiatives in 2015-16 to foster and promote the continual development of employees and ensure that key positions maintain a measure of ongoing stability, enabling the organization to achieve its business objectives. For example, a succession planning tool was developed and communicated and an exercise was conducted to develop high potential employees for executive level roles. NRC also made talent attraction a critical business priority by undertaking a number of additional initiatives targeting improvement in the NRC hiring protocols.
- As part of the Corporate Services Transformation initiative, the foundation was established to increase productivity, effectiveness and reduce costs through process and system improvements. Procure-to-payment processes were designed and systems developed to enable the imminent implementation of electronic approvals and workflow for purchase requisitions and invoices. The automation of the routing of the required approvals and documentation electronically will reduce the workload for all employees involved in the preparation, approval, processing and verification of purchase requisitions and invoices in addition to improving the effectiveness of internal controls.

For more information on organizational priorities, see the Ministers' mandate letters.

Section II: Expenditure Overview

Actual Expenditures

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2015–16 Total Authorities Available for Use	2015–16 Actual Spending (authorities used)	Difference (actual minus planned)
853,254,782	864,870,317	1,143,964,849	945,077,595	80,207,278

Human Resources (Full-Time Equivalents [FTEs])

2015–16 Planned	2015–16 Actual	2015–16 Difference (actual minus planned)
3,314.5	3,668.6	354.1

Budgetary Performance Summary

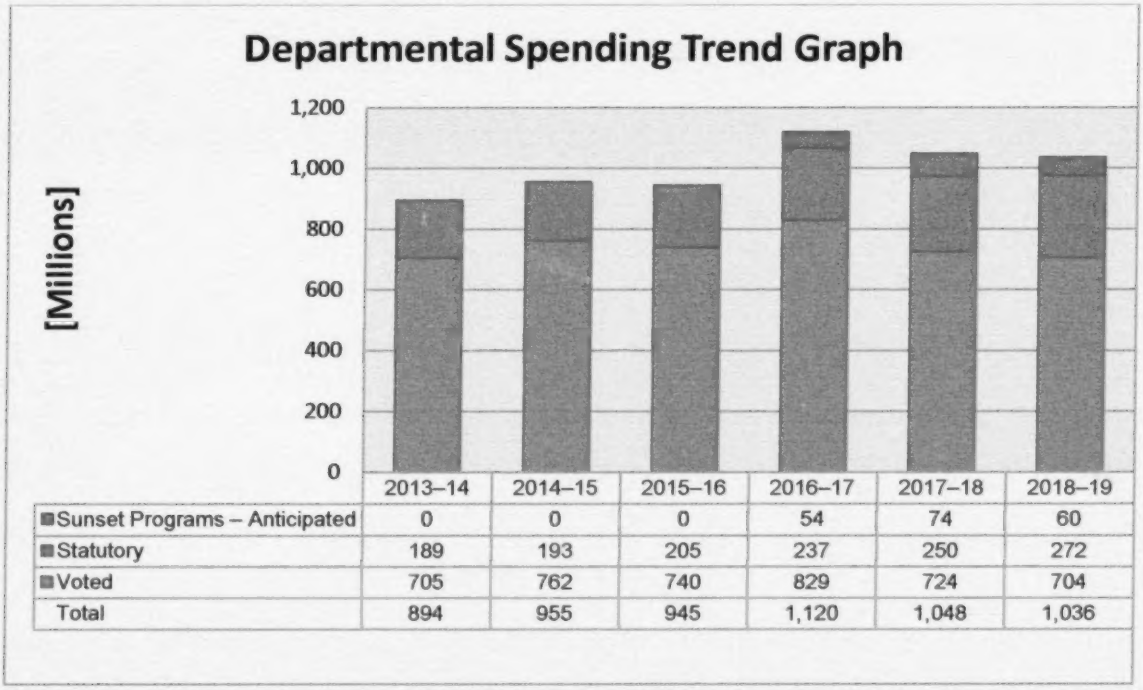
Budgetary Performance Summary for Program(s) and Internal Services (dollars)

Program(s) and Internal Services	2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending	2015–16 Total Authorities Available for Use	2015–16 Actual Spending (authorities used)	2014–15 Actual Spending (authorities used)	2013–14 Actual Spending (authorities used)
Strategic Outcome 1: Canadian businesses prosper from innovative technologies								
Program 1.1: Technology Development and Advancement	278,902,744	289,693,954	308,400,163	327,782,818	450,634,962	326,830,511	344,930,416	317,721,198
Program 1.2: Industrial Research Assistance Program	293,359,644	293,359,644	265,841,644	265,841,644	296,159,162	288,919,078	271,824,267	278,130,653
Strategic Outcome1 Subtotal	572,262,388	583,053,598	574,241,807	593,624,462	746,794,124	615,749,589	616,754,683	595,851,851
Strategic Outcome 2: R&D infrastructure for an innovative and knowledge-based economy								
Program 2.1: Science Infrastructure and Measurement	77,443,974	78,268,299	79,860,370	81,340,983	168,637,771	116,379,686	106,451,583	99,678,744
Strategic Outcome 2 Subtotal	77,443,974	78,268,299	79,860,370	81,340,983	168,637,771	116,379,686	106,451,583	99,678,744
Internal Services Subtotal	203,548,420	203,548,420	202,656,329	202,656,329	228,532,954	212,948,320	232,498,650	198,887,611
Total	853,254,782	864,870,317	856,758,506	877,621,774	1,143,964,849	945,077,595	955,704,916	894,418,206

Summary Financial Resource Analysis: The National Research Council of Canada reported a total planned spending of $864.9M for fiscal year 2015-16 and incurred total expenditures of $945.1M. The increase in spending of $80.2M primarily relates to:

- Renewal of NRC's sunsetting funding to support NRC's industry-partnered R&D activities of $59.6M in Supplementary Estimates A;
- An increase of capital Spending of $15.0M;
- An increase in contributions of $31.5M to TRIUMF; and
- An increase in contributions of $5.4M to the International Astronomical Observatories Program; offset by a reduction in Statutory Revenue spending of $24.1 million and $7.2M in miscellaneous decreased planned spending across all program activities.

Departmental Spending Trend



	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19
Sunset Programs – Anticipated	0	0	0	54	74	60
Statutory	189	193	205	237	250	272
Voted	705	762	740	829	724	704
Total	894	955	945	1,120	1,048	1,036

Spending was impacted by various Budget initiatives in Budget 2012 to Budget 2015 related to contribution (permanent doubling of funding for IRAP, Canada Accelerator and Incubator Program (CAIP), Business Innovation Access Program (BIAP), Thirty Meter Telescope and the Youth Employment Program) and infrastructure funding. Another factor contributing to the rise in spending relates to the amount of growth planned in Statutory Revenue spending aligned with NRC's transformation to be more industry focused. NRC's funding profile includes sunsetting programs, including funding to support NRC's industry-partnered R&D activities, TRIUMF sub-atomic research facility, Federal Infrastructure Initiative and the Thirty Meter Telescope. Planned spending does not reflect future budget decisions.

Expenditures by vote

For information on NRC's organizational voted and statutory expenditures, consult the *Public Accounts of Canada 2016*[iv].

Alignment of Spending with the Whole-of-Government Framework

Alignment of 2015-16 Actual Spending with the Whole-of-Government Framework[v] (dollars)

Program	Spending Area	Government of Canada Outcome	2015–16 Actual Spending
1.1 Technology Development and Advancement	Economic Affairs	Strong Economic Growth	326,830,511
1.2 Industrial Research Assistance Program			288,919,078
2.1: Science Infrastructure and Measurement		Innovative and Knowledge-based Economy	116,379,686

Total Spending by Spending Area (dollars)

Spending Area	Total Planned Spending	Total Actual Spending
Economic Affairs	661,321,897	732,129,275
Social Affairs	0	0
International Affairs	0	0
Government Affairs	0	0

Financial Statements and Financial Statements Highlights

Financial Statements

NRC's complete financial statements are published on NRC's website[vi].

Financial Statements Highlights

Condensed Statement of Operations

National Research Council Canada
Condensed Statement of Operations and Departmental Net Financial Position (audited)
For the Year Ended March 31, 2016 (dollars)

Financial Information	2015–16 Planned Results	2015–16 Actual	2014–15 Actual	Difference (2015–16 actual minus 2015–16 planned)	Difference (2015–16 actual minus 2014–15 actual)
Total expenses	940,557,000	978,168,000	965,868,000	37,611,000	12,300,000
Total revenues	177,748,000	185,598,000	146,723,000	7,850,000	38,875,000
Net cost of operations before government funding and transfers	762,809,000	792,570,000	819,145,000	29,761,000	(26,575,000)
Departmental net financial position	626,555,000	628,267,000	600,170,000	1,712,000	28,097,000

Expenses by Type (2015-16)

Type	Percent of total expenses
Salaries and employee benefits	43
Grants and contributions	30
Utilities, materials, and supplies	7
Professional and special services	7
Amortization	6
Other	7

NRC incurred total expenses of $978M in 2015-16, an increase from the $966M spent in 2014-2015. NRC's major expense components are salaries and employee benefits ($423M) and grants and contributions ($293M), representing 73% of total expenses. The $12 M increase is primarily due to an increase in grants and contributions of $29M which was partially offset by: a decrease in salary and benefits of $9M due to severance benefits expense reduction; a decrease of $6M in utilities, materials and supplies, and a decrease of $3M in professional services. Most of the other expense categories appearing in the financial statements were stable in comparison to 2014-2015. The planned expenses, as reported in NRC's Future Oriented Financial Statements in the 2015-2016 Report on Plans and Priorities (RPP), were $941M. The variance between planned and actual results of $38M is primarily due to an increase in grants and contributions ($24M for IRAP contributions to firms, youth, BIAP and CAIP and $6M in contributions to TRIUMF) and the addition of Thirty Meter Telescope International Observatory (TIO) expenses ($5M).

NRC generates revenue which can be reinvested in operations. NRC earned total revenues of $186M in 2015-16, an increase from $147M in 2014-2015. NRC's major revenue components were Research Services ($52M) and Technical Services ($89M), representing 75.8% of revenues. The planned revenue, as reported in NRC's Future Oriented Financial Statements in the 2015-2016 RPP was $178M. The total variance of $8M is largely attributed to Research Services ($14M lower than the planned results), Technical Services ($1M lower than the planned results), grants and contributions ($14M higher than the planned results due mostly to the first year of consolidation of the TIO financial statements) and finally to an increase of $8M due to Other revenues, Intellectual property, royalties and fees and Sales of goods and information production.

Revenue by Type (2015-16)

Type	Percent of total revenues
Technical Services	48
Research Services	28
Intellectual property, royalties, and fees	5
Rentals	3.5
Sales of goods and information products	3.5
Other	12

National Research Council Canada
Condensed Statement of Financial Position (audited)
As at March 31, 2016 (dollars)

Financial Information	2015–16	2014–15	Difference (2015–16 minus 2014–15)
Total net financial assets	348,353,000	359,591,000	(11,238,000)
Total liabilities	275,171,000	291,013,000	(15,842,000)
Departmental net financial assets	73,182,000	68,578,000	4,604,000
Total non-financial assets	555,085,000	531,592,000	23,493,000
Departmental net financial position	628,267,000	600,170,000	28,097,000

NRC's consolidated net financial assets totalled $348M as at March 31, 2016, a decrease of $11M from the March 31, 2015 balance of $359M. The balance is made up of the Due from the Consolidated Revenue Fund (CRF), accounts receivable, inventory for resale, and cash and investments. The decrease is primarily due to a $33M decrease of the Due from the CRF which is partially offset by an increase in accounts receivable of $14M, as well as an increase of $6M in cash and investments (Canada France Hawaii Telescope and TIO). NRC's consolidated liabilities consist of accounts payable and accrued liabilities, vacation and

Net Financial Assets as at March 31, 2016

Type	Percent of total net financial assets
Due from the Consolidated Revenue Fund	81
Accounts receivable and advances	14.5
Inventory for resale	1.5
Cash and investments	3

compensatory leave, lease inducements, deferred revenue and employee future benefits. The balance as at March 31, 2015 of $275M represents a $16M decrease from the March 31, 2015 balance of $291M. The decrease is primarily due to a $10M decrease in accounts payable and accrued liabilities payable to external parties, a $3M decrease in lease inducements, and a decrease of $2M in the employee future benefits liability.

The decrease in overall consolidated liabilities contributed to NRC having a departmental net surplus position as at March 31, 2016 - a measure of the organization's ability to repay all debts. NRC's strong financial position is also reflected in its Departmental Net Financial Position at March 31, 2016 which improved by $28M over the previous year to $628M. The consolidation of TIO accounts in FY 2015-16 contributed to the increase for an amount of $10M because the NRC membership participation was 19.5% as of 31 December 2015 based on the aggregate pledged by all current parties.

Liabilities as at March 31, 2016

Type	Percent of total liabilities
Accounts payable and accrued liabilities	61
Vacation pay and compensatory leave	10
Lease inducements	13
Deferred revenue	3
Employee Future Benefits	13

Section III: Analysis of Program(s) and Internal Services

Program 1.1: Technology Development and Advancement (TD&A)

Description

This program develops and advances technologies to enhance the prosperity of Canadian industries in support of federal priorities such as the federal Science and Technology Strategy. This includes national-scale flagship technology-development initiatives having sufficient critical mass to contribute demonstrably to national prosperity. To bring new and innovative products and processes to the marketplace, companies must advance the emerging and maturing technologies embodied in applied developments and prototypes to a level where the risk is sufficiently reduced to be accepted from the business, investment, and regulatory perspectives. The program bridges this critical technology gap through mission-oriented research and development services, and specialized technical services such as custom design and fabrication, testing, prototyping, up-scaling, and demonstration in specialized facilities.

Program Performance Analysis and Lessons Learned

NRC was able to advance technologies in support of Canadian industries and Canadian society. NRC provided targeted research, technology development and demonstration and direct technical support to clients, leveraging use of NRC's unique infrastructure (e.g. aerodynamic testing in wind tunnels of different scales) to deliver value-added products and services.

Client satisfaction with NRC remained high. Over 86% of surveyed R&D clients reported that the Program had a positive impact on their organization. From these clients reporting a positive impact[5], 52% indicated that the impact was evidenced by an increase in knowledge and ability to plan and execute R&D projects; 44.9% by an increase in innovation capacity; 33.1% by an improvement in product and services in market and 27.6% by a faster deployment of technologies to market.

NRC research initiatives led to 18 products or services which were made available to serve Canadians by NRC's industry partners. Examples include:

- NRC collaborated with Canadian SME in the development of a state-of-the-art aircraft cabin air quality sensor and provided the test facility for performance testing. Advancements in aircraft cabin air quality sensing devices will contribute to ensuring a contaminant free and comfortable environment for cabin occupants during flights.
- NRC contributed to the development of a Twin Otter aircraft simulator model by fabricating and installing an instrumentation package and performing subsequent flight testing of the land and seaplane variants. The simulator model was an important enabler for Viking Air to sign a contract for an initial order of 50 aircraft during the Paris Air Show and to qualify pilots with a float endorsement in water based operations.
- In partnership with Transport Canada and the Royal Canadian Navy, NRC successfully demonstrated the potential use of unmanned aerial systems technology to complement and support icebreaking operations of the Canadian Coast Guard (CCG). The NRC-CCG joint

[5] When answering the specific question on impact in the NRC customer satisfaction survey, each client could select multiple impact statements that benefited their organization

technology demonstration used an unmanned aircraft to send real-time data on ice-conditions to a light CCG icebreaker.

- NRC developed a more durable and cost effective cathode for battery manufacturer's aqueous lithium-sulfur technology, helping Canadian battery manufacturers produce longer lasting batteries while reducing costs.
- NRC signed a licensing and development agreement with its first strategic client in the medical device sector, CAE Healthcare, which began offering its NeuroVR™ (a neurosurgery simulator) based on NRC's virtual reality technology. This offers the world's most realistic training environment for open cranial and endoscopic brain surgery procedures to assist health professionals in developing their skills. With NRC's support, CAE Healthcare had its first worldwide commercial sales.
- NRC developed two patented microfluidic platform technologies, Power-Blade and Articulated Blade, which were validated in collaboration with Heath Canada and the Canadian Food Inspection Agency (CFIA) for rapid isolation and identification of food pathogens. The reagent addition and incubation steps are fully automated, eliminating the need for manual operation. Testing time and reagent use were significantly decreased and both platforms are being used in federal food testing laboratories with the goal of expanding their use beyond NRC collaborators.
- NRC's Human Health Therapeutics' (HHT) bioprocessing expertise and support has enabled clinical trials for a Streptococcus and Ebola vaccine and pre-clinical work required to prepare an Investigational New Drug (IND) submission and initiate clinical trials for a tularemia vaccine. NRC's HHT also helped move several human therapeutic products to current good manufacturing practices (cGMP) for production of material necessary for pre-clinical studies.
- The first license for a femtosecond Fibre Bragg grating (FBG) patent was issued to a Canadian-based fiber optic component manufacturer to support the development of low-cost components for telecommunications, sensing and industrial laser markets. This NRC-developed next-generation technology removes several labour intensive processing steps in FBG fabrication, thereby increasing component reliability, reducing component costs and lowering barriers for penetration of FBG technology into the market.

Budgetary Financial Resources[6] (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2015–16 Total Authorities Available for Use	2015–16 Actual Spending (authorities used)	2015–16 Difference (actual minus planned)[4]
278,902,744	289,693,955	450,634,962	326,830,511	37,136,556

Human Resources (FTEs)

2015–16 Planned	2015–16 Actual	2015–16 Difference (actual minus planned)[7]
1,680.8	2,055.4	374.6

Performance Results

Expected Results	Performance Indicators	Targets	Actual Results
Canadian industries commercialize advanced technologies	Client/stakeholder deployment of technology	19 annually by March 2016	18 clients announced intentions in 2015-16 to exploit technologies developed with or by the Program.
	Client/stakeholder feedback on benefits: jobs, sales, R&D	82% annually by March 2016	86% of 127 respondents reported benefits from the Program

[7] In 2015-16, NRC received $59.6M ($36.1M in Salaries) in Funding to develop and deploy research and technology solutions that will help grow innovative businesses in Canada (Budget 2015). This funding was received through the Supplementary Estimates A. At the time when the 2015-16 RPP was prepared, this funding was not approved. Therefore, the impact on FTEs was excluded. This funding is used to fund 380 FTEs.

Program 1.2: Industrial Research Assistance Program (IRAP)

Description

The program contributes to the growth and prosperity of Canadian small and medium sized enterprises (SMEs) by stimulating innovation, adoption and/or commercialization of technology-based products, services, or processes in Canada. This is done through: 1) technical and related business advice and networking facilitated by a cross-Canada network of field professional staff; 2) cost-shared merit-based contributions; and 3) contributions supporting employment of post-secondary graduates. This program uses funding from the following transfer payments: IRAP Contributions to Firms; IRAP Contributions to Youth Employment Strategy; Contributions to Organizations; and Contributions for the Digital Technology Adoption Pilot Program (DTAPP).

Program Performance Analysis and Lessons Learned

IRAP met most of its annual targets for 2015-16. A total of 2,341 unique firms were funded (vs. 2,564 in 2014-15) through contributions for a total of 2,949 projects, supporting 10,980 jobs (up from 9,240 jobs in 2014-15) including 1,213 for youth.

IRAP funded clients reported that their total employees grew yearly on average by 14% from 2012 to 2014, and their revenue increased yearly on average by 17.5% for the same period. In all, 87% reported an increase in at least one of Total Employees, Revenue, or Profit.

IRAP delivered the Canadian HIV Technology Development Program (CHTD) on behalf of Innovation, Science and Economic Development Canada (ISED). Twelve projects continued to receive support under CHTD, to develop new and innovative technologies against the immunodeficiency disease.

During the second year of the five-year Canadian Accelerator and Business Incubator Program (CAIP), IRAP delivered funding to 16 recipients. These organizations, in turn, delivered incremental services to early-stage firms and entrepreneurs, promoting investment readiness, sustainable and high-growth businesses.

Additionally, IRAP funded 170 organizations that provide innovation services to IRAP clients complementary to those offered IRAP's Industrial Technology Advisors (ITAs).

During 2015-16, IRAP partnered with other government departments in the delivery of innovation programs to support the delivery of grants and contributions. Partnerships included PSPC's Build in Canada Innovation Program (BCIP), Western Economic Diversification Canada (WD)'s Western Innovation Initiative (WINN), Atlantic Canada Opportunities Agency (ACOA)'s Atlantic Innovation Fund (AIF), and Canadian Northern Economic Development Agency (CanNor). As well, IRAP delivered the Canadian International Innovation Program (CIIP) and the CanExport Program in partnership with Global Affairs Canada (GAC).

The Government of Canada's Concierge Service, developed, implemented and operated by IRAP continued to grow as a single point of access to information on funding, expertise, and research facilities for SMEs seeking to grow through innovation. Expert Innovation Advisors (IAs) engaged with SMEs to provide customized and direct referrals to the most relevant resources available from partner organizations across the country. During 2015-16, the Concierge Service assisted 4,865 clients, 22% above target and representing a 36% year over year growth.

Through continuous improvement to the Concierge Service, SMEs now have access to information on 100 funding programs, 50 advisory service programs, 65 facilities and 51 sources of expertise representing hundreds of experts.

The following are examples of impacts during 2015-16 following advice and financial support provided by IRAP.

- Vancouver's Aquatic Informatics Inc. was ranked by Deloitte as one of Canada's Top-50 fastest-growing tech firms, jumping from fewer than 10 workers to 80 employees. Customers in approximately 50 countries use its water management and water data software.
- Vancouver's G-PAK hired four PhDs to do research and test prototypes, eventually commercializing its idea for a fully compostable pod for "K-Cup" coffee makers, with plans to reduce the impacts associated with about 12 billion non-compostable pods tossed in the trash worldwide each year.
- Mississauga's Cyclone Manufacturing Inc. invested in top-of-the-line equipment that could capably machine aircraft parts from titanium. Now just one of a handful of aerospace manufacturers that can work with the metal, Cyclone will use IRAP's help to increase production, add 80,000 square feet of manufacturing space, and hire new staff.
- Saskatoon's PapaBravo Innovations Ltd developed a line of rechargeable electric vehicles for the mining sector to replace diesel, thus eliminating noxious fumes underground. The company is now taking orders for its vehicles from as far as Australia, and has attracted another Saskatoon firm, which acquired PapaBravo and its technology in 2015.
- Waterloo's Aeryon Labs Inc. designed and developed a superior high definition camera able to recognize a human face from 300 metres away for its unmanned aerial vehicles. The technology enabled Aeryon to expand its list of civilian, industrial and military clients to include those in 35 countries.

Additional information is available on the program's website[vii].

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2015–16 Total Authorities Available for Use	2015–16 Actual Spending (authorities used)	2015–16 Difference (actual minus planned)
293,359,644	293,359,644	296,159,162	288,919,078	(4,440,566)

Human Resources (FTEs)

2015–16 Planned	2015–16 Actual	2015–16 Difference (actual minus planned)
396.0	356.0	(40.0)

Performance Results

Expected Results	Performance Indicators	Targets	Actual Results
Innovative businesses grow in Canada	SME jobs supported	9,000 annually by March 2016	10,980 supported through contributions.
	SMEs served (through funding)	2,500 annually by March 2016	2,341 SMEs funded through the *Contributions to Firms* transfer payment program.
	SME client feedback on growth: jobs, revenues, net operating profit	Under Development[8]	87% of IRAP clients reported growth in jobs, revenues, or profit as a result of IRAP support.

[8] The indicator lags by one year due to survey methodology. The methodology is now defined and a target will be defined for 2016-17.

Program 2.1: Science Infrastructure and Measurement (SI&M)

Description

This program manages national science facilities and infrastructure critical to research, development and innovation by Canadian scientific and technological communities. This includes operating and administering Canada's astronomical observatories. It also fosters development and maintenance of Canada's metrological infrastructure system that provides industries and researchers access to reliable measurements that are traceable to recognized national standards maintained by the program. The program helps clients make the most of this infrastructure by facilitating access to a wide range of Canadian and international user communities and by participating in networks. In addition, the program provides stewardship of the TRIUMF sub-atomic research facility. This program uses funding from the following transfer payment: TRIUMF (Canada's National Laboratory for Particle and Nuclear Physics).

Program Performance Analysis and Lessons Learned

The Program provided Canadians with access to critical science infrastructure, including leading-edge observatories and one of the world's largest accessible collections of astronomical data. The continued high subscription rate for Canada's international telescopes demonstrates the relevance and demand for telescope access. Collaborating with CSA, NRC co-led the development of ultraviolet detectors for the UltraViolet Imaging Telescope (UVIT) which is aboard ASTROSAT, India's first space observatory launched in September 2015. This work will allow Canadian astronomers to use several telescopes to observe an object simultaneously at multiple wavelengths.

The Program provided traceable measurements defining the national measurement standards in line with international requirements, thus enabling Canadian industry's entry and ongoing presence in international markets. Access to reliable measurement materials also enabled industry to respond to the changing regulatory and standardization frameworks. In 2015-16, NRC's Measurement Science and Standards launched 15 completely new Certified Reference Materials increasing the number available to 70. Sold to 514 unique clients in 66 countries, these reference materials are used to confirm metrological traceability of products and ensure quality control in seafood safety, water quality testing, environmental testing, nutritional supplements, and stable isotope verification.

The Program provided $50.8M in transfer payments to TRIUMF, a joint venture by a consortium of 19 Canadian universities, which functions as Canada's national laboratory for research in subatomic physics. The funding was used for leading-edge academic and applied research in particle and nuclear physics, materials science, nuclear medicine, and accelerator-based sciences.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2015–16 Total Authorities Available for Use	2015–16 Actual Spending (authorities used)	2015–16 Difference (actual minus planned)[9]
77,443,974	78,268,298	168,637,771	116,379,686	38,111,388

Human Resources (FTEs)

2015–16 Planned	2015–16 Actual	2015–16 Difference (actual minus planned)
273.7	277.2	3.5

Performance Results

Expected Results	Performance Indicators	Targets	Actual Results
National science infrastructure and measurement standards services are valued by user communities	Client/user satisfaction with NRC services and facilities	85% annually by March 2016	86%

[9] The increase in spending primarily relates to an increase in contributions of $31.5M to TRIUMF

Program: Internal Services

Description

Internal services are groups of related activities and resources that are administered to support the needs of programs and other corporate obligations of an organization. Internal services include only those activities and resources that apply across an organization, and not those provided to a specific program. The groups of activities are Management and Oversight Services; Communications Services; Legal Services; Human Resources Management Services; Financial Management Services; Information Management Services; Information Technology Services; Real Property Services; Materiel Services; and Acquisition Services.

Program Performance Analysis and Lessons Learned

Security and Information Technology - NRC has successfully migrated 14 of NRC's corporate IT applications to a new secure environment, allowing the business units dependant upon these applications to return to full productivity. Plans were developed to migrate the remaining business critical applications and a small group of research functions by 30 June, 2016. NRC has successfully documented the technical nature of the majority of its research functions; however, it has not yet migrated any of these functions into the new secure environment due to complexity of the migration requirements and capacity and resource constraints facing NRC's collaborator (SSC). NRC has developed and implemented a suite of security policies, directives, standards and guidelines improving the security posture at the NRC. This has been reinforced and leveraged through the establishment of the NRC Security Champion's Network which forms part of NRC's robust security awareness, training and education program. All these achievements were attained through a balanced restructuring of the Security Branch, major renewal efforts and the determination of all NRC employees to improve security throughout the organization.

Program and Project Management - NRC's implemented a three- year review process for research initiatives in 2015-16 with a total of three reviews completed during the year. The reviews focused on assessing the continued relevance of NRC initiatives relative to market and research needs of industry and Canada. This includes assessing the extent of science advancements, stakeholder engagement and effectiveness of program and project management. As an example of the value of the process this approach was applied to the review of NRC's Canadian Wheat Improvement Flagship and resulted in valuable insights into science advancements since the program's inception aligned with the program's objectives and confirmed the need for program continuation with increased engagement with industry based on those advancements.

Strategic Intelligence - In 2015-16, the Game-Changing Technologies initiative identified seven challenge areas critical to Canada's future as follow: The cities of the future, prosperous and sustainable rural and remote communities, maintaining quality of life for an aging population, protecting Canadian security and privacy, transforming the classroom for continuous and adaptive learning, next generation health care systems and a safe, sustainable and profitable food industry. The outcomes of the Game-Changing Technologies initiative will help to shape NRC's investment strategy in emerging technologies and influence future NRC initiatives. A process for NRC-wide knowledge dissemination was successfully piloted using internally created industry dashboards that provide critical insight, performance indicators, trends and other key information

on industries associated with the TD&A program. Plans describing ongoing intelligence needs, anticipated projects and intelligence gaps were developed for all participating NRC units to help identify, and make informed decisions about, business and technical opportunities.

Communication –NRC has moved to a centralized, coordinated approach to tradeshow and conference participation to maximize resources, provide consistency of messaging and to increase impact. Several coordinated tradeshows were piloted in 2015-16 with much greater emphasis to be placed on this approach in 2016-17. A new intranet was launched in November that provides a much more interactive platform to engage employee participation and commentary. A major effort was placed on engaging NRC employees in NRC's Centennial Activities, including an Ottawa launch event that connected close to 4000 employees from coast to coast and general awareness to the public.

Knowledge Management - Serving as a critical element of NRC's broader knowledge management strategy, an NRC Information Management Plan for 2015-19 was completed, setting out planned outcomes, goals and activities for the management of information, and integrating with other business and operational plans and priorities of the organization aligned with the Government of Canada.

Human Resources - A number of initiatives were undertaken in 2015-16 to improve the NRC hiring function and help attract and hire top talent. Initiatives included the development of an employer value proposition resulting in a new recruitment messaging that conveys NRC's promise and advantage as an employer and the launch of an employee referral program to leverage the network of NRC's workforce to assist in recruiting new employees to the organization. Other initiatives included the implementation of an employee candidate care approach in support of employee wellbeing and the development of new relationships with post-secondary institutions to create awareness of NRC as potential employer and optimize student and new graduate recruitment. Finally, several tools and resources to support hiring managers and advisors in their roles were created.

To align current talent with future leadership needs and critical roles, an NRC succession planning tool was developed and communicated and a succession exercise was conducted to develop high potential employees for executive level roles. The tool includes worksheets for the identification of critical positions and high potential employees and a template for the development of succession plans. NRC continued to provide supervisors with access to human resource management tools, information and news updates throughout the fiscal year.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2015–16 Total Authorities Available for Use	2015–16 Actual Spending (authorities used)	2015–16 Difference (actual minus planned)
203,548,420	203,548,420	228,532,954	212,948,320	9,399,900

Human Resources (FTEs)

2015–16 Planned	2015–16 Actual	2015–16 Difference (actual minus planned)
964.0	980.0	16.0

Section IV: Supplementary Information

Supporting Information on Lower-Level Programs

Supporting information on lower-level programs[10] is available on the NRC's website[viii].

[10] Lower level programs are the twelve NRC sub-programs as defined in NRC's Program Activity Architecture.

Supplementary Information Tables

The following supplementary information tables are available on the NRC's website[IX].

- Departmental Sustainable Development Strategy
- Details on Transfer Payment Programs of $5 Million or More
- Horizontal Initiatives
- Internal Audits and Evaluations
- Response to Parliamentary Committees and External Audits
- Status Report on Projects Operating With Specific Treasury Board Approval
- Status Report on Transformational and Major Crown Projects
- Up-Front Multi-Year Funding
- User Fees, Regulatory Charges and External Fees

Federal Tax Expenditures

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance Canada publishes cost estimates and projections for these measures annually in the Report of Federal Tax Expenditures[X]. This report also provides detailed background information on tax expenditures, including descriptions, objectives, historical information and references to related federal spending programs. The tax measures presented in this report are the responsibility of the Minister of Finance.

Organizational Contact Information

Questions and requests for information may be directed to:

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Ottawa, Ontario, Canada K1A 0R6
Phone: (613) 993-9101 or toll-free 1-877-NRC-CNRC (1-877-672-2672)
Fax: (613) 952-9907
TTY number: (613) 949-3042
E-mail: info@nrc-cnrc.gc.ca

Appendix: Definitions

appropriation: Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

budgetary expenditures: Include operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

Departmental Performance Report: Reports on an appropriated organization's actual accomplishments against the plans, priorities and expected results set out in the corresponding Report on Plans and Priorities. These reports are tabled in Parliament in the fall.

full-time equivalent: Is a measure of the extent to which an employee represents a full person-year charge against a departmental budget. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

Government of Canada outcomes: A set of 16 high-level objectives defined for the government as a whole, grouped in four spending areas[xi]: economic affairs, social affairs, international affairs and government affairs.

Management, Resources and Results Structure: A comprehensive framework that consists of an organization's inventory of programs, resources, results, performance indicators and governance information. Programs and results are depicted in their hierarchical relationship to each other and to the Strategic Outcome(s) to which they contribute. The Management, Resources and Results Structure is developed from the Program Alignment Architecture.

non-budgetary expenditures: Include net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

performance: What an organization did with its resources to achieve its results, how well those results compare with what the organization intended to achieve and how well lessons learned have been identified.

performance indicator: A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, program, policy or initiative respecting expected results.

performance reporting: The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

planned spending: For Reports on Plans and Priorities (RPPs) and Departmental Performance Reports (DPRs), planned spending refers to those amounts that receive Treasury Board approval

by February 1. Therefore, planned spending may include amounts incremental to planned expenditures presented in the Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their RPPs and DPRs.

plans: The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead up to the expected result.

priorities: Plans or projects that an organization has chosen to focus and report on during the planning period. Priorities represent the things that are most important or what must be done first to support the achievement of the desired Strategic Outcome(s).

program: A group of related resource inputs and activities that are managed to meet specific needs and to achieve intended results and that are treated as a budgetary unit.

Program Alignment Architecture: A structured inventory of an organization's programs depicting the hierarchical relationship between programs and the Strategic Outcome(s) to which they contribute.

Report on Plans and Priorities: Provides information on the plans and expected performance of appropriated organizations over a three-year period. These reports are tabled in Parliament each spring.

result: An external consequence attributed, in part, to an organization, policy, program or initiative. Results are not within the control of a single organization, policy, program or initiative; instead they are within the area of the organization's influence.

statutory expenditures: Expenditures that Parliament has approved through legislation other than appropriation acts. The legislation sets out the purpose of the expenditures and the terms and conditions under which they may be made.

Strategic Outcome: A long-term and enduring benefit to Canadians that is linked to the organization's mandate, vision and core functions.

sunset program: A time-limited program that does not have an ongoing funding and policy authority. When the program is set to expire, a decision must be made whether to continue the program. In the case of a renewal, the decision specifies the scope, funding level and duration.

target: A measurable performance or success level that an organization, program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

voted expenditures: Expenditures that Parliament approves annually through an Appropriation Act. The Vote wording becomes the governing conditions under which these expenditures may be made.

Whole-of-Government *Framework:* Maps the financial contributions of federal organizations receiving appropriations by aligning their Programs to a set of 16 government-wide, high-level outcome areas, grouped under four spending areas.

Endnotes

i **Eureka**, http://www.nrc-cnrc.gc.ca/eng/about/global/eureka.html
ii **Justice Laws, http://laws.justice.gc.ca/eng/N-15/index.html**
iii **Canadian Wheat Alliance**, http://canadianwheatalliance.ca/
iv **Public Accounts of Canada 2015**, http://www.tpsgc-pwgsc.gc.ca/recgen/cpc-pac/index-eng.html
v **Whole-of-government framework, http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx**
vi **NRC Financial Statements**, http://www.nrc-cnrc.gc.ca/eng/reports/index.html
vii **NRC IRAP, http://www.nrc-cnrc.gc.ca/eng/irap/index.html**
viii **Supporting information on NRC's sub-programs**, http://www.nrc-cnrc.gc.ca/eng/reports/2015_2016/dpr_2016/dpr_lower_level_programs.html
ix **NRC DPR Supplementary Tables**, http://www.nrc-cnrc.gc.ca/eng/reports/2014_2015/dpr_2015/dpr_supplementary_tables.html
x **Report of Federal Tax Expenditures publication**, http://www.fin.gc.ca/purl/taxexp-eng.asp
xi **Whole-of-government framework**, http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx